

What is Claimed is:

5 1. A pressure-sensitive adhesive label construction comprising:
a prelaminate construction comprising:
a layer of pressure-sensitive adhesive disposed on a release surface of a
removable flexible substrate; and
a continuous film layer disposed on the layer of pressure-sensitive adhesive that
renders the pressure-sensitive adhesive nonblocking;
10 an overlaminated film layer disposed over a surface of the continuous film layer; and
a printed indicia interposed between the continuous film and overlaminated film layers,
wherein the continuous film layer has a viscosity that is within a range of viscosities
that is compatible with the viscosity of the pressure-sensitive adhesive at a shear rate of
approximately $40,000\text{ s}^{-1}$ and at a given application temperature.

15 2. The label construction as recited in claim 1 wherein pressure-sensitive adhesive
label construction has a Gurley stiffness of less than about 40 mg.

20 3. The label construction as recited in claim 2 wherein pressure-sensitive adhesive
label construction has a Gurley stiffness of less than about 10 mg.

25 4. The label construction as recited in claim 1 wherein the pressure-sensitive
adhesive and wherein pressure-sensitive adhesive and continuous film layer are formed
simultaneously.

30 5. A pressure-sensitive adhesive label construction comprising:
a prelaminate construction comprising:
a layer of pressure-sensitive adhesive disposed on a release surface of a
removable flexible substrate; and
a continuous film layer disposed on the layer of pressure-sensitive adhesive that
renders the pressure-sensitive adhesive nonblocking;
35 an overlaminated film layer disposed over a surface of the continuous film layer; and
a printed indicia interposed between the continuous film and overlaminated film layers,

wherein the pressure-sensitive adhesive label construction has a Gurley stiffness of less than about 10 mg.

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6. The label construction as recited in claim 5 wherein the pressure-sensitive adhesive label construction is dispensable at a speed of at least 0.4 m/s using peel plate dispensing equipment.

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7. The label construction as recited in claim 5 wherein the continuous film and pressure-sensitive adhesive layers are applied simultaneously, and wherein the continuous film layer is formed from a material having viscosity within eight times the viscosity of the pressure sensitive adhesive at a shear rate of approximately $40,000\text{ s}^{-1}$ and at a given application temperature.

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8. The label construction as recited in claim 5 wherein the pressure-sensitive adhesive label construction has a Gurley stiffness in the range of from about 3 to 8 mg.

9. The label construction as recited in claim 5 further comprising a layer of adhesive material interposed between the printed indicia and one of the continuous film or the overlaminant film layer.

10. The label construction as recited in claim 5 wherein the printed indicia is disposed on a surface of the continuous film layer.

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11. The label construction as recited in claim 5 wherein the printed indicia is disposed on a surface of the overlaminant film layer adjacent the continuous film layer.

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12. The label construction as recited in claim 5 wherein one of the continuous film layer or the overlaminant film layer is formed from a material that is heat-activatable to form an adhesive surface for laminating to the other of the continuous film layer or the overlaminant film layer.

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5 13. The label construction as recited in claim 12 wherein the heat-activatable material is selected from the group consisting of heat-seal adhesives, modified heat-seal adhesives, and delayed heat-seal adhesives.

10 14. The label construction as recited in claim 13 wherein the heat-activatable material is a polyamide resin.

15 15. The label construction as recited in claim 5 wherein the prelaminate pressure-sensitive adhesive construction has a thickness, excluding the flexible substrate in the range of from 50 to 120 μm .

20 16. A pressure-sensitive adhesive label construction comprising:
a prelaminate pressure-sensitive adhesive construction having a Gurley stiffness of less than about 10 mg comprising:

25 a layer of pressure-sensitive adhesive disposed on a release surface of a removable substrate; and

30 a continuous film layer disposed on the layer of pressure-sensitive adhesive that renders the pressure-sensitive adhesive nonblocking;

35 an overlaminated film layer laminated onto the continuous film layer; and

40 a printed indicia interposed between continuous film and overlaminated film layers, wherein the combined thickness of the pressure-sensitive adhesive construction excluding the release liner is in the range of from about 50 to 120 μm .

45 17. The label construction as recited in claim 16 wherein the pressure-sensitive adhesive label construction has a Gurley stiffness of less than about 10 mg and is dispensable at a speed of approximately 0.4 m/s using peel plate equipment.

50 18. The label construction as recited in claim 17 wherein the pressure-sensitive adhesive label construction has a Gurley stiffness in the range of from about 3 to 8 mg.

55 19. The label construction as recited in claim 16 further comprising a further layer of adhesive material interposed between the printed indicia and one of the continuous film layer or the overlaminated film layer.

20. The label construction as recited in claim 19 wherein the printed indicia is disposed on the continuous film layer.

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21. The label construction as recited in claim 19 wherein the printed indicia is disposed on a backside surface of the overlaminated film layer adjacent the continuous film layer.

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22. The label construction as recited in claim 16 wherein one of the continuous film layer or the overlaminated film layer is formed from a material that is heat-activatable to form a pressure-sensitive adhesive surface for laminating to the other of the continuous film layer or the overlaminated film layer.

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23. The label construction as recited in claim 16 wherein the pressure-sensitive adhesive label construction resists lifting when applied to a glass substrate and immersed in water at approximately 70°C for a period of at least 15 minutes.

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24. The label construction as recited in claim 16 wherein the layer of pressure-sensitive adhesive and continuous film layer are applied simultaneously.

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25. The label construction as recited in claim 24 wherein the continuous film layer has a viscosity that differs from the viscosity of the pressure-sensitive adhesive by no greater than a factor of eight at a shear rate of approximately $40,000\text{ s}^{-1}$ and at a given application temperature.

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26. A pressure-sensitive adhesive label construction comprising:
a prelaminate pressure-sensitive label construction comprising:

a layer of pressure-sensitive adhesive disposed on a release surface of a removable flexible substrate; and

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a non-paper continuous film layer disposed on the layer of pressure-sensitive adhesive that renders the pressure-sensitive adhesive nonblocking, wherein the continuous film layer and pressure-sensitive adhesive layer are disposed simultaneously, wherein the prelaminate pressure-sensitive label construction has a Gurley stiffness of less than about 10 mg;

5 an overlaminate film layer laminated to the continuous film layer;
a printed indicia interposed between the overlaminated and continuous film layers; and
a layer of adhesive material interposed between the printed indicia and one of the
continuous film layer or overlaminate film layer,
wherein the pressure-sensitive adhesive label construction has a Gurley stiffness of less
than 10 mg.

10 27. The label construction as recited in claim 26 wherein the continuous film layer
has a viscosity that differs from the viscosity of the pressure-sensitive adhesive by no greater
than a factor of eight at a shear rate of approximately $40,000\text{ s}^{-1}$ and at a given application
temperature

20 28. The label construction as recited in claim 26 wherein the pressure-sensitive
adhesive label construction is dispensable at a speed of approximately 0.4 m/s using peel plate
equipment.

25 29. The label construction as recited in claim 26 wherein the printed indicia is
disposed on a surface of the continuous film layer and the layer of adhesive material is
interposed between the printed indicia and the overlaminate film layer.

30 30. The label construction as recited in claim 26 wherein the printed indicia is
disposed on a surface of the overlaminate film layer adjacent the continuous film layer and
the layer of adhesive material is interposed between the printed indicia and the continuous
film layer.

35 31. The label construction as recited in claim 26 wherein the prelaminate pressure-
sensitive adhesive label construction has a thickness excluding the removable substrate in the
range of from 20 to 75 μm , and wherein the pressure-sensitive adhesive label construction has
a total thickness in the range of from 50 to 120 μm .

32. The label construction as recited in claim 26 that when attached to a substrate
surface resists lifting when immersed in water at approximately 70°C for a period of at least
15 minutes.

33. A pressure-sensitive adhesive label construction comprising:
5 a layer of pressure-sensitive adhesive disposed on a release surface of a flexible
removable substrate;

10 a continuous film layer disposed on the layer of pressure-sensitive adhesive that
renders the pressure-sensitive adhesive nonblocking;

15 an overlaminant film layer laminated to the continuous film layer; and

10 a printed indicia interposed between portions of the continuous film and overlaminant
film layers,

wherein, one of the continuous film layer or overlaminant film layer is formed from
a material that when heated forms its own adhesive surface for lamination with the other of
the continuous film layer or overlaminant film layer, and

wherein the continuous film layer has a viscosity that is within a range of viscosities
that is compatible with the viscosity of the pressure-sensitive adhesive at a shear rate of
approximately $40,000\text{ s}^{-1}$ and at a given application temperature.

34. The label construction as recited in claim 33 wherein the pressure-sensitive
adhesive construction has a Gurley stiffness of less than about 10 mg.

35. The label construction as recited in claim 33 wherein the layer of pressure-
sensitive adhesive and continuous film layer are disposed simultaneously.

36. The label construction as recited in claim 33 wherein the heat-activatable
25 material is selected from the group consisting of heat-seal adhesives, modified heat-seal
adhesives, and delayed heat-seal adhesives.

37. The label construction as recited in claim 36 wherein the heat-activatable
30 material is a polyamide resin.

38. A method for forming a pressure-sensitive adhesive construction comprising the steps of:

5 applying a layer of pressure-sensitive adhesive to a release surface of a removable substrate;

10 simultaneously applying a film-forming material onto a surface of the pressure-sensitive adhesive layer to form a continuous film thereover and render the pressure-sensitive adhesive tack free, wherein the film-forming material has a viscosity that is within a range of viscosities that is compatible with the viscosity of the pressure-sensitive adhesive at a shear rate of approximately $40,000\text{ s}^{-1}$ and at a given application temperature;

15 laminating an overlaminant film layer onto the prelaminate construction; and

20 forming a printed indicia onto one of the continuous film or a backside surface of the overlaminant film layer adjacent the continuous film.

25 39. The method as recited in claim 38 further comprising the step of heating one of the continuous film or the overlaminant film layer before the step of laminating to provide an adhesive surface for subsequent lamination with the other of the continuous film or the overlaminant film layer.

30 40. The method as recited in claim 38, wherein the continuous film is formed from a material having a viscosity within eight times the viscosity of the pressure-sensitive adhesive at a shear rate of approximately $40,000\text{ s}^{-1}$ and at a given application temperature.

35 41. The method as recited in claim 40, wherein the given application temperature is from about 150° to about 180°C .